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Title:	VEHICLE COMMUNICATIONS NETWORK ADAPTER
Inventors:	Knight et al.
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AMENDED APPEAL BRIEF

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Sir:

This Amended Appeal Brief is submitted in support of the appeal to the Board of Patent Appeals and Interferences from the action of the Examiner dated April 15, 2009, finally rejecting claims 1-95 in the above-identified application. The full Appeal Brief was originally submitted on November 10, 2009. On February 3, 2010, the Examiner rejected the Appeal Brief as defective for failing to include a concise statement of each ground of rejection presented for review. Appellants have added the requested information.

Because Appellants submit this Amended Appeal Brief within thirty days of the mailing date of the Notification of Non-Compliant Appeal Brief, Appellants believe that no additional fees are due in regard to this filing. The Commissioner is, however, authorized to charge any further fees which may be due or credit any overpayments to Deposit Account 10-0435, with reference to matter number 29766-68964.

I. REAL PARTY IN INTEREST

The real party in interest in the above-identified application is Cummins, Inc., a corporation of the state of Indiana and having a business address of P.O. Box 3005, Columbus, Indiana 47202. Cummins, Inc. is the owner, by assignment, of the entire interest in the subject application, which assignment was recorded in the U.S. Patent and Trademark Office on May 29, 2002, on Reel 012932, Frame 0246.

II. RELATED APPEALS AND INTERFERENCES

Appellants, Appellants' legal representatives, and Appellants' assignee know of no other pending appeals or interferences which will directly affect, or be directly affected by, or have a bearing on, the Board's decision in the subject appeal.

III. STATUS OF CLAIMS

Claims 1-95 have been finally rejected by the Examiner. Appellants appeal the final rejection of claims 1-95. A copy of all presently pending claims 1-95 is included in the claims appendix of section VIII.

IV. STATUS OF AMENDMENTS

No amendments to the pending claims have been filed subsequent to the final rejection.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Appellants' rejected independent claim 1 recites the following:

> 1. An adapter for allowing communications between a vehicle control computer coupled to a vehicle communications network and a remote computer, the adapter comprising:
>
> a first interface configured for operatively coupling to a first network segment of the vehicle communications network, the first network segment configured for communications according to a first protocol;
>
> a second interface configured for operatively coupling to a second network segment of the vehicle communications network, the second network segment configured for communications according to a second protocol; and
>
> a third interface including a universal serial bus (USB) controller having a USB device port and a USB host port, the third interface configured for operatively coupling to the remote computer via at least one of the USB device port and the USB host port;
>
> wherein the vehicle control computer and the remote computer communicate via one of the first network segment through the first and third interfaces and the second network segment through the second and third interfaces.

Claim 1 is an apparatus claim generally directed to an adapter 200 for allowing communications between a vehicle control computer 102-106 coupled to a vehicle communications network 108 and a remote computer 110, 112 (FIGS. 1-2; ¶ [0001] (reference is made to U.S. Publ. No. 2003/0163587)). As described in Appellants' specification, an illustrative vehicle control system 100 may include one or more vehicle control computers including, but not limited to, a fuel system control computer 102, a

transmission control computer 104, and a data logging control computer 106 (FIGS. 1A, 1B, ¶¶ [0002], [0108]-[0112]). The vehicle control computers are communicatively coupled by a vehicle communications network 108, which is "a collection of one or more computer networks that facilitate communications between network nodes" (FIGS. 1A, 1B, ¶ [0113]). The network 108, or individual segments of the network, may communicate according to a network protocol, such as SAE J1939, SAE J1850, SAE J1587, and ISO-9141, by way of example (¶¶ [0003], [0114]-[0115]).

In the illustrative embodiment of FIG. 2, the adapter 200 includes a first interface 214 configured for operatively coupling to a first network segment of the vehicle communications network 108, the first network segment configured for communications according to a first protocol (FIG. 2; ¶ [0129]). For example, the first interface may be embodied as a J1939 CAN transceiver 214 which operatively couples to a segment of vehicle network 108 configured for communications according to the J1939 protocol (FIG. 2; ¶ [0129]).

The embodiment of adapter 200 illustrated in FIG. 2 also includes a second interface 216 configured for operatively coupling to a second network segment of the vehicle communications network 108, the second network segment configured for communications according to a second protocol (FIG. 2; ¶¶ [0131]-[0132]). For example, the second interface may be embodied as a J1587/RS-485 transceiver 216 which operatively couples to a segment of vehicle network 108 configured for communications according to the J1587 protocol (FIG. 2; ¶¶ [0131]-[0132]).

Furthermore, the embodiment of adapter 200 illustrated in FIG. 2 includes a third interface 202 configured for operatively coupling to a remote computer 110, 112 (FIGS.

1-2; ¶¶ [0120]-[0122]). For example, the third interface may be embodied as a universal serial bus (USB) controller/transceiver 202 having a USB device port (Port 2) and a USB host port (Port 1), where the remote computer 110, 112 operatively couples to at least one of the USB device port and the USB host port (FIGS. 1-2; ¶¶ [0009]-[0012], [0120]-[0122]). In some embodiments, the USB controller/transceiver 202 may additionally or alternatively include a USB On-The-Go Port (Port 3) which is capable of functioning as a USB host or device port (FIG. 2; ¶¶ [0009]-[0012], [0120]-[0122]).

The remote computer may be embodied as either a USB host 110 or a USB device 112 (FIGS. 1A, 1B; ¶¶ [0004]-[0008], [0116]-[0119]). By way of example, a USB host 110 may be a stationary, personal computer 110, while a USB device 112 may be mobile, handheld computer, such as a personal digital assistant (PDA) 112 (FIG. 2; ¶¶ [0004]-[0008], [0116]-[0119] , [0159]). As explained in Appellant's specification, the remote computer 110, 112 may operably couple to a particular port of the third interface 202 based on whether the remote computer is configured to communicate as a USB host or a USB device (¶¶ [0004]-[0012], [0116]-[0122]).

The adapter 200 allows communication between one or more vehicle control computers 102-106 on the vehicle network 108 and one or more remote computers 110, 112 (FIGS. 1A, 1B, 3-10; ¶¶ [0116], [0138]). Depending on which network segment the vehicle control computer resides, these communications will occur either via the first network segment through the first and third interfaces 214, 202 or via the second network segment through the second and third interfaces 216, 202 (FIG. 2). By way of example, the adapter 200 may communicate data between the segment of vehicle network 108 configured for communications according to the J1939 protocol,

the J1939 CAN transceiver 214, and the USB controller 202 (FIGS. 3, 4; [0139]-[0144]). Also by way of example, the adapter 200 may communicate data between the segment of vehicle network 108 configured for communications according to the J1587 protocol, the J1587/RS-485 transceiver 216, and the USB controller 202 (FIGS. 5, 6; [0145]-[0149]). Thus, in operation, the adapter 200 may communicatively couple one or more vehicle control computers 102-106 with one or more remote computers 110, 112.

Appellants' rejected independent claim 28 recites the following:

> 28. An adapter for allowing communications between a vehicle control computer coupled to a J1939 network of a vehicle and a remote computer, the adapter comprising:
>
> a first interface configured for operatively coupling to a J1939 network of a vehicle;
>
> a second interface configured for operatively coupling to a second network of the vehicle, the second network configured for communications according to a protocol different from the J1939 network; and
>
> a third interface including a universal serial bus (USB) controller having a USB device port and a USB host port, the third interface configured for operatively coupling to the remote computer via at least one of the USB device port and the USB host port;
>
> wherein the vehicle control computer and the remote computer communicate via one of the J1939 network through the first and third interfaces and the second network through the second and third interfaces.

Claim 28 is an apparatus claim generally directed to an adapter 200 for allowing communications between a vehicle control computer 102-106 coupled to a J1939 network 108 and a remote computer 110, 112 (FIGS. 1-2; ¶ [0001]). As set forth above, a vehicle control system 100 may include "one or more computer networks that facilitate communications between network nodes" and that operate according to one or more network protocols, such as SAE J1939, SAE J1850, SAE J1587, and ISO-9141,

by way of example (FIGS. 1A, 1B; ¶¶ [0003], [0113]-[0115]). The limitations of claim 28 may illustratively be embodied in an adapter 200 having a first interface 214, a second interface 216, a third interface 202, similar to the adapter 200 previously summarized hereinabove with respect to claim 1.

Appellants' rejected independent claim 36 recites the following:

> 36. An adapter for allowing communications between a vehicle control computer coupled to a J1587 network of a vehicle and a remote computer, the adapter comprising:
>
> a first interface configured for operatively coupling to the J1587 network of a vehicle;
>
> a second interface configured for operatively coupling to a second network of the vehicle, the second network configured for communications according to a protocol different from the J1587 network; and
>
> a third interface including a universal serial bus (USB) controller having a USB device port and a USB host port, the third interface configured for operatively coupling to the remote computer via at least one of the USB device port and the USB host port;
>
> wherein the vehicle control computer and the remote computer communicate via one of the J1587 network through the first and third interfaces and the second network through the second and third interfaces.

Claim 36 is an apparatus claim generally directed to an adapter 200 for allowing communications between a vehicle control computer 102-106 coupled to a J1587 network 108 and a remote computer 110, 112 (FIGS. 1-2; ¶ [0001]). As set forth above, a vehicle control system 100 may include "one or more computer networks that facilitate communications between network nodes" and that operate according to one or more network protocols, such as SAE J1939, SAE J1850, SAE J1587, and ISO-9141, by way of example (FIGS. 1A, 1B; ¶¶ [0003], [0113]-[0115]). The limitations of claim 36 may illustratively be embodied in an adapter 200 having a first interface 216, a second

interface 214, a third interface 202, similar to the adapter 200 previously summarized hereinabove with respect to claim 1 (notably, the first interface, rather than the second interface, may be embodied as a J1587/RS-485 transceiver 216).

Appellants' rejected independent claim 44 recites the following:

> 44. An adapter for allowing communications between control computers of a vehicle and a remote computer, the adapter comprising:
>
> a first interface configured for operatively coupling to a J1939 network segment of the vehicle;
>
> a second interface configured for operatively coupling to a J1587 network segment of the vehicle; and
>
> a third interface including a universal serial bus (USB) controller having a USB device port and a USB host port, the third interface configured for operatively coupling to the remote computer via at least one of the USB device port and the USB host port;
>
> wherein at least one control computer of the vehicle and the remote computer communicate via the J1939 network through the first and third interfaces and at least another control computer of the vehicle and the remote computer communicate via the J1587 network through the second and third interfaces.

Claim 44 is an apparatus claim generally directed to an adapter 200 for allowing communications between vehicle control computers 102-106, each coupled to either a J1939 segment or a J1587 segment of vehicle communications network 108, and a remote computer 110, 112 (FIGS. 1-2; ¶ [0001]). As set forth above, a vehicle control system 100 may include "one or more computer networks that facilitate communications between network nodes" and that operate according to one or more network protocols, such as SAE J1939, SAE J1850, SAE J1587, and ISO-9141, by way of example (FIGS. 1A, 1B; ¶¶ [0003], [0113]-[0115]). The limitations of claim 44 may illustratively be embodied in an adapter 200 having a first interface 214, a second

interface 216, a third interface 202, similar to the adapter 200 previously summarized hereinabove with respect to claim 1.

Appellants' rejected independent claim 51 recites the following:

> 51. A method for allowing communications between a vehicle control computer operatively coupled to a communication network of a vehicle and a remote computer, the method comprising:
>
> receiving a datum via one of a first interface and a second interface, the first interface operatively coupled to a first network segment of the vehicle and configured for communication according to a first protocol, the second interface operatively coupled to a second network segment of the vehicle and configured for communication according to a second protocol;
>
> transmitting the datum via a third interface, the third interface including a universal serial bus controller having a USB device port and a USB host port, the third interface configured for operatively coupling to a remote computer via at least one of the USB device port and the USB host port;
>
> wherein the datum is received from the vehicle control computer operatively coupled to one of the first network segment and the second network segment, and wherein the datum is transmitted to the remote computer.

Claim 51 is a method claim generally directed to allowing communications between a vehicle control computer 102-106 operatively coupled to a communication network 108 of a vehicle and a remote computer 110, 112 (FIGS. 1A, 1B; ¶ [0001]). Illustratively, the method of claim 51 may be performed using an adapter 200 having a first interface 214, a second interface 216, a third interface 202, similar the adapter 200 previously summarized hereinabove with respect to claim 1.

For instance, in the illustrative embodiment of FIGS. 3 and 5, data is received from a vehicle control computer 102-106 via either the segment of vehicle network 108 configured for communications according to the J1939 protocol and the J1939 CAN

transceiver 214 or the segment of vehicle network 108 configured for communications according to the J1587 protocol and the J1587/RS-485 transceiver 216 (FIGS. 3, 5; [0139]-[0142], [0145]-[0147]). The adapter 200 then transmits the data to a remote computer 110, 112 via the appropriate port of USB controller 202 (FIGS. 3, 5; [0139]-[0142], [0145]-[0147]).

Appellants' rejected independent claim 56 recites the following:

> 56. An adapter for allowing communications between a vehicle control computer operatively coupled to a vehicle communications network, the adapter comprising:
>
> a first interface configured for operatively coupling to a first network segment of the vehicle communications network, the first network segment configured for communications according to a first protocol;
>
> a second interface configured for operatively coupling to a second network segment of the vehicle communications network, the second network segment configured for communications according to a second protocol; and
>
> a third interface including a USB On-The-Go port, the third interface configured for operatively coupling to the remote computer via the USB On-The-Go port;
>
> wherein the vehicle control computer and the remote computer communicate via one of the first network segment through the first and third interfaces and the second network segment through the second and third interfaces.

Claim 56 is an apparatus claim generally directed to an adapter 200 for allowing communications between a vehicle control computer 102-106 coupled to a vehicle communications network 108 and a remote computer 110, 112 (FIGS. 1-2; ¶ [0001]). As set forth above, a vehicle control system 100 may include "one or more computer networks that facilitate communications between network nodes" and that operate according to one or more network protocols, such as SAE J1939, SAE J1850, SAE J1587, and ISO-9141, by way of example (FIGS. 1A, 1B; ¶¶ [0003], [0113]-[0115]).

The limitations of claim 56 may illustratively be embodied in an adapter 200 having a first interface 214, a second interface 216, a third interface 202, similar to the adapter 200 previously summarized hereinabove with respect to claim 1.

Appellants' rejected independent claim 78 recites the following:

> 78. An adapter for allowing communications between control computers of a vehicle and a remote computer, the adapter comprising:
>
> a first interface configured for operatively coupling to a J1939 network segment of the vehicle;
>
> a second interface configured for operatively coupling to a J1587 network segment of the vehicle; and
>
> a third interface including a USB On-The-Go port, the third interface configured for operatively coupling to the remote computer via the USB On-The-Go port;
>
> wherein at least one control computer of the vehicle and the remote computer communicate via the J1939 network segment through the first and third interfaces and at least another control computer of the vehicle and the remote computer communicate via the J1587 network segment through the second and third interfaces.

Claim 78 is an apparatus claim generally directed to an adapter 200 for allowing communications between vehicle control computers 102-106, each coupled to either a J1939 segment or a J1587 segment of vehicle communications network 108, and a remote computer 110, 112 (FIGS. 1-2; ¶ [0001]). As set forth above, a vehicle control system 100 may include "one or more computer networks that facilitate communications between network nodes" and that operate according to one or more network protocols, such as SAE J1939, SAE J1850, SAE J1587, and ISO-9141, by way of example (FIGS. 1A, 1B; ¶¶ [0003], [0113]-[0115]). The limitations of claim 78 may illustratively be embodied in an adapter 200 having a first interface 214, a second

interface 216, a third interface 202, similar to the adapter 200 previously summarized hereinabove with respect to claim 1.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. The rejection of Appellants' claims 1-9, 18, 25-27, 51-62, and 71-77 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,181,992 to Gurne et al. (hereinafter "Gurne") in view of U.S. Patent No. 6,925,368 to Funkhouser et al. (hereinafter "Funkhouser").

B. The rejection of Appellants' claims 10-17, 19-24, 28-50, 63-70, and 78-95 under 35 U.S.C. § 103(a) over Gurne in view of Funkhouser and further in view of U.S. Patent No. 6,430,485 to Hullinger (hereinafter "Hullinger").

VII. ARGUMENTS

A. Gurne and Funkhouser Fail to Render Obvious Appellants' Claims 1-9, 18, 25-27, 51-62, and 71-77.

1. Claims 1-9, 18, and 51-55

Claims 1-9, 18, and 51-55 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Gurne in view of Funkhouser. Appellants assert that no one or combination of Gurne and Funkhouser discloses all the limitations of Appellants' independent claims 1 and 51, thereby failing to establish a prima facie case of obviousness for claims 1-9, 18, and 51-55. For example, neither Gurne nor Funkhouser disclose (i) first and second interfaces configured for operatively coupling to distinct network segments of a vehicle communications network or (ii) a third

interface including a universal serial bus (USB) controller having a USB device port and a USB host port. For at least these reasons, the Examiner's rejection of claims 1-9, 18, and 51-55 should be reversed.

The rejection of these claims under 35 U.S.C. § 103(a) based upon Gurne and Funkhouser is fundamentally improper because the Examiner has failed to correctly perform the factual inquiries required under *Graham v. John Deere Co.*, 383 U.S. 1 (1966). In *KSR Int'l. Co. v. Teleflex, Inc.*, 127 S. Ct. 1727 (2007), the United States Supreme Court clarified the test for obviousness and reaffirmed that the question of obviousness must be resolved on the basis of the factual inquiries identified in its *Graham* decision. This decision has been codified for use by patent examiners throughout MPEP 2100. The first of the factual inquiries under *Graham* is a determination of the scope and content of the prior art.

This determination is guided in part by the examiner's interpretation of the claims. *See* MPEP § 2141.II.A. An examiner cannot adopt a claim interpretation that is contrary to the language of the claims and the interpretative guidance afforded by the Appellants' specification. When determining the scope of the claims in patent applications, the Patent and Trademark Office (PTO) is required to give the words of a claim "their ordinary and customary meaning." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312, 75 USPQ2d 1321, 1326 (Fed. Cir. 2005). The ordinary and customary meaning is the "meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention." *Id.* at 1326. In addition to focusing on the words of the claim itself, the PTO must also give the "claims their broadest reasonable construction in light of the specification as it would be interpreted by one of ordinary skill

in the art." *Id.* at 1329 (internal citation omitted). The *Phillips* court emphasized:

> It is the person of ordinary skill in the field of the invention through whose eyes the claims are construed. Such a person is deemed to read the words used in the patent documents with an understanding of their meaning in the field, and to have knowledge of any special meaning and usage in the field. The inventor's words that are used to describe the invention—the inventor's lexicography—must be understood and interpreted by the court as they would be understood and interpreted by a person in that field of technology.

Id. at 1326 (quoting *Multiform Desiccants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1477 (Fed. Cir. 1998)). Thus, while an examiner must interpret the claims broadly, a rejection cannot adopt an expansive construction of the claims that runs counter to the specification or the understanding and interpretation of one ordinary skill in the art. In asserting that the combination of Gurne and Funkhouser discloses the limitations of claims, the Examiner's rejection fails to properly determine the scope and content of the prior art and to properly apply the broadest reasonable interpretation standard.

Independent claim 1 recites "a first interface configured for operatively coupling to a first network segment of the vehicle communications network, . . . a second interface configured for operatively coupling to a second network segment of the vehicle communications network, . . . and a third interface . . . configured for operatively coupling to the remote computer." The first network segment of the vehicle is "configured for communications according to a first protocol," while the second network segment is "configured for communications according to a second protocol." The Examiner has improperly asserted that Gurne teaches an adapter including both first and second interfaces, each configured for operatively coupling to a distinct network segment of a vehicle communications network, reasoning that the "scanner connects to [the] vehicle using a plurality of cables and associated protocols." Office Action mailed

Apr. 15, 2009, p. 2-3 (citing Gurne, col. 3, lines 44-62; col. 4, lines 24-64). Contrary to the Examiner's assertions, however, the Gurne reference does not teach an adapter with multiple vehicle interfaces but rather teaches a handheld tool having only a single vehicle interface.

Gurne discloses a hand held unit 10 which connects to a car 12 via a vehicle interface cable 16 and also connects to a master station 14 via a general purpose interface bus (GPIB) cable 18. (Gurne, FIG. 1; col. 3, lines 43-46.) The hand held unit 10 of Gurne includes three interfaces: a 36-way vehicle interface connection 42, a GPIB master station interface connection 44, and an RS-232 serial connection 40 for "communicating with other computers and computer peripherals." (Gurne, FIG. 3; col. 4, lines 29-45.) The hand held unit 10 also includes connection points 32-38 for digital multi-meter probes and a peripheral expansion port 48. (Gurne, FIG. 3; col. 4, lines 29-45.) While Gurne teaches that "the vehicle interface [42] is adapted to work with a variety of interface cables [16]" to support communications protocols for different types of vehicles, Gurne also clearly states that the cables are interchangeably connected to the same interface:

> Because the same connector interface 42 is used to support all of these various communication protocols, the hand held tool 10 must be able to recognize which cable is connected at the interface 42 and adapt its communication protocol accordingly. In this embodiment, this is accomplished by ensuring each of the unique cables has a unique resistance associated therewith. . . . Once the hand held tool 10 determines which vehicle interface cable 16 is connected to it, the hand held tool 10 adapts its communication protocol to match the protocol of the cable. This feature allows the hand held tool to be used with a wide variety of vehicles and vehicle controller systems, such as engine, transmission, anti-lock brake and body controllers.

(Gurne, col. 4, line 41 to col. 5, line 27 (emphasis added).) Thus, the vehicle interface

42 of Gurne only allows for one cable 16, which operates according to one protocol, to be connected at any given time. Thus, contrary to the Examiner's mischaracterization of Gurne, the vehicle interface 42 represents only a single vehicle interface. Nowhere does Gurne disclose "a second interface configured for operatively coupling to a second network segment of the vehicle communications network;" rather, the GPIB interface 44 and RS-232 interface 40 of Gurne are used only to communicate with computer systems remote from the vehicle. (*See, e.g.*, Gurne, col. 12, lines 34-35.)

The Examiner has also recently asserted that the probe inputs 32-38 on the hand held unit 10 might qualify as the second interface of claim 1. Advisory Action mailed July 22, 2009, p. 2 (citing Gurne, col. 7, line 53 to col. 8, line 3). Gurne explains that the connection points 32-38 for electrical probes allow the handheld unit 10 to function as a "stand alone digital multi meter (DMM)." (*Id.*) When acting as a DMM, the hand held unit 10 may perform an electrical reading, such as measuring a resistance, a voltage, or a current. (Gurne, col. 7, line 53 to col. 8, line 56). The DMM probe inputs 32-38 clearly do not meet the limitations of Appellant's claims, which require that the first and second interfaces each operably couple to a network segment of a vehicle communications network and allow a vehicle control computer and a remote computer to communicate via the interfaces and the network.

Possibly realizing the untenable nature of his position that Gurne discloses both first and second vehicle interfaces, the Examiner argued for the first time in the Advisory Action that Appellant's independent claims did not require distinct first and second interfaces. Advisory Action at p. 2 ("Since the claims [do] not necessarily define that the first and second interface [are] not the same interface, then Gurne's interface

42 communicating with [a] plurality of interface using different protocols meet[s] the scope of the claimed limitation."). This unreasonably broad interpretation is contrary to ordinary meaning of the claim language and inconsistent with the specification. Appellants' specification describes the first and second interfaces as distinct components which operably couple to distinct networks or network segments, using distinct protocols, in the vehicle communications network. (*See* U.S. Publ. No. 2003/0163587, FIG. 2; ¶¶ [0129]-[0132].)

For at least these reasons, the Examiner has failed to properly evaluate the scope and content of the Gurne reference. Moreover, this deficiency of Gurne is not remedied in the Funkhouser reference which also fails to teach an adapter including "a first interface configured for operatively coupling to a first network segment" and "a second interface configured for operatively coupling to a second network segment" of a vehicle. Funkhouser discloses a data acquisition and transfer (DAT) device 12 which includes a first data link 14 which connects to the OBD II port 16 of a vehicle 18 and a second data link 22 (preferably USB) which connects to a personal computer 26. (Funkhouser, FIGS. 1-2; col. 6, lines 8-17; col. 8, lines 35-63.) The DAT device 12 of Funkhouser may optionally have a third interface, such as an infrared link, a Bluetooth link, or a modem, but these interfaces are each for communicating with a remote system, not the vehicle 18. (Funkhouser, col. 16, lines 10-31.) As neither Gurne nor Funkhouser disclose or suggest two interfaces, each configured for operatively coupling to a distinct network segment of a vehicle communications network, the combination cannot support a prima facie case of obviousness under 35 U.S.C. § 103(a), and this rejection should be reversed.

In addition to the first and second interfaces, independent claim 1 recites "a third interface including a universal serial bus (USB) controller having a USB device port and a USB host port." The Examiner has also failed to properly determine the scope and content of the prior art with respect to this limitation. The Examiner admits that Gurne does not teach an interface including a USB controller, but asserts that Funkhouser meets this limitation by teaching "a scanner 12 that is connected to a remote computer 26 using a USB device port." Office Action mailed Apr. 15, 2009, p. 3. Contrary to the Examiner's assertions, Funkhouser does not disclose the claimed "third interface," as the reference fails to disclose a USB host port.

Funkhouser teaches that the DAT device 12 includes only a single USB port 68, which allows the unit to operate as a USB device when communicating with a personal computer 26. (Funkhouser, FIGS. 1-2; col. 8, lines 46-63.) Nowhere does Funkhouser teach or suggest that the DAT device 12 includes a USB controller having both a USB device port and a USB host port. As such, the device of Funkhouser would not be capable of communicating with a remote computer which was operating as a USB device. (*See* U.S. Publ. No. 2003/0163587, ¶¶ [0009]-[0014].) As neither Gurne nor Funkhouser disclose or suggest a third interface including a USB controller having a USB device port and a USB host port, the combination cannot support a prima facie case of obviousness under 35 U.S.C. § 103(a), and the rejection should be reversed for this additional reason.

Independent claim 51 recites a "first interface operatively coupled to a first network segment of the vehicle and configured for communication according to a first protocol, [a] second interface operatively coupled to a second network segment of the

vehicle and configured for communication according to a second protocol . . . [and a] third interface including a universal serial bus controller having a USB device port and a USB host port." For the same reasons discussed above with regard to independent claim 1, no one or combination of Gurne and Funkhouser discloses these limitations. In addition, claims 2-9 and 18 depend from independent claim 1 and should be found allowable for at least the above reasons. Claims 52-55 depend from independent claim 51 and should also be found allowable for at least the above reasons. Thus, the Board should reverse the Examiner's rejections of claims 1-9, 18, and 51-55.

2. Claims 25-27, 56-62, and 71-77

Claims 25-27, 56-62, and 71-77 also stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Gurne in view of Funkhouser. Appellants assert that no one or combination of Gurne and Funkhouser discloses all the limitations of Appellants' dependent claim 25 and independent claim 56, thereby failing to establish a prima facie case of obviousness of claims 25-27, 56-62, and 71-77. For example, neither Gurne nor Funkhouser disclose (i) first and second interfaces configured for operatively coupling to distinct network segments of a vehicle communications network or (ii) a third interface including a universal serial bus (USB) controller having a USB On-The-Go port. For at least these reasons, the Examiner's rejection of claims 25-27, 56-62, and 71-77 should be reversed.

Independent claim 56 recites "a first interface configured for operatively coupling to a first network segment of the vehicle communications network, . . . a second interface configured for operatively coupling to a second network segment of the vehicle communications network, . . . and a third interface . . . configured for operatively

coupling to the remote computer." The first network segment of the vehicle is "configured for communications according to a first protocol," while the second network segment is "configured for communications according to a second protocol." For the same reasons discussed above with regard to independent claim 1, no one or combination of Gurne and Funkhouser discloses these limitations, and the Examiner's rejection of independent claim 56 should be reversed.

In addition to the first and second interfaces, independent claim 56 recites "a third interface including a USB On-The-Go port." In similar fashion, dependent claim 25 further limits claim 1 by requiring that "the universal serial bus (USB) controller further comprises a USB On-The-Go port." The Examiner has also failed to properly determine the scope and content of the prior art with respect to this limitation. Appellants' specification explains that a USB On-The-Go port is capable of functioning both as a device and a limited-function host. (U.S. Publ. No. 2003/0163587, ¶ [0010].) The Examiner admits that Gurne does not teach an interface including a USB controller, but asserts that Funkhouser meets this limitation by teaching "a scanner 12 that is connected to a remote computer 26 using a USB device port." Office Action mailed Apr. 15, 2009, p. 3. Contrary to the Examiner's assertions, Funkhouser does not disclose the claimed "third interface," as the reference fails to disclose a USB On-The-Go port.

As discussed above, Funkhouser teaches that the DAT device 12 includes only a single USB port 68, which allows the unit to operate as a USB device when communicating with a personal computer 26. (Funkhouser, FIGS. 1-2; col. 8, lines 46-63.) Nowhere does Funkhouser teach or suggest that the DAT device 12 includes a

USB controller having a USB On-The-Go port also capable of functioning as host. As such, the device of Funkhouser would not be capable of communicating with a remote computer which was operating as a USB device. (*See* U.S. Publ. No. 2003/0163587, ¶¶ [0009]-[0014].) As neither Gurne nor Funkhouser disclose or suggest a third interface including a USB controller having a USB On-The-Go port, the combination cannot support a prima facie case of obviousness under 35 U.S.C. § 103(a), and the rejection should be reversed for this additional reason.

Claims 57-62 and 71-77 depend from independent claim 56 and should be found allowable for at least the above reasons. Claims 26 and 27 depend from claim 25 and should also be found allowable for at least the above reasons. Thus, the Board should reverse the Examiner's rejections of claims 25-27, 56-62, and 71-77.

B. Gurne, Funkhouser, and Hullinger Fail to Render Obvious Appellants' Claims 10-17, 19-24, 28-50, 63-70, and 78-95.

1. Claims 10-17, 19-24, 28-32, 36-40, and 44-47

Claims 10-17, 19-24, 28-32, 36-40, and 44-47 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Gurne in view of Funkhouser and further in view of Hullinger. Appellants assert that no one or combination of Gurne, Funkhouser, and Hullinger discloses all the limitations of Appellants' independent claims 1, 28, 36, and 44, thereby failing to establish a prima facie case of obviousness of claims 10-17, 19-24, 28-32, 36-40, and 44-47. For example, neither Gurne, Funkhouser, nor Hullinger disclose (i) first and second interfaces configured for operatively coupling to distinct network segments of a vehicle communications network or (ii) a third interface including a universal serial bus (USB) controller having a USB device port and a USB host port.

For at least these reasons, the Examiner's rejection of claims 10-17, 19-24, 28-32, 36-40, and 44-47 should be reversed.

Claims 10-17 and 19-24 depend from independent claim 1 and, thus, incorporate the limitations of that claim. As discussed above, neither Gurne nor Funkhouser disclose or suggest first and second vehicle interfaces, each configured for operatively coupling to a distinct network segment of a vehicle communications network, or a third interface including a USB controller having a USB device port and a USB host port, as required by that claim. Hullinger fails to remedy these deficiencies of Gurne and Funkhouser and likewise fails to show or disclose the adapter of claim 1.

The device of Hullinger, wireless network node 40A, is connected to the serial data bus 18 of vehicle 13 at a single diagnostic port 36 by a single J1939 compatible cable 39. (Hullinger, FIGS. 1-2; col. 3, lines 37-59; col. 4, lines 25-26.) Hullinger does teach connection via the RS-485 or UART ports of vehicle control system 10 as an alternative to the J1939 port (col. 5, lines 23-35); but nowhere teaches an adapter having both "a first interface configured for operatively coupling to a first network segment" and "a second interface configured for operatively coupling to a second network segment" of a vehicle. Furthermore, Hullinger does not teach a USB controller, let alone a USB host port. Thus, no one or combination of Gurne, Funkhouser, and Hullinger teach or suggest the limitations of independent claim 1. For at least this reason, the rejection of dependent claims 10-17 and 19-24 should be reversed.

Independent claim 28 recites "a first interface configured for operatively coupling to a J1939 network of a vehicle, . . . a second interface configured for operatively coupling to a second network of the vehicle, . . . and a third interface including a

universal serial bus (USB) controller having a USB device port and a USB host port, the third interface configured for operatively coupling to the remote computer." The second network of the vehicle is "configured for communications according to a protocol different from the J1939 network." For the same reasons discussed above with regard to independent claim 1, no one or combination of Gurne, Funkhouser, and Hullinger discloses these limitations, and the Examiner's rejection of independent claim 28 should be reversed.

Independent claim 36 recites "a first interface configured for operatively coupling to a J1587 network of a vehicle, . . . a second interface configured for operatively coupling to a second network of the vehicle, . . . and a third interface including a universal serial bus (USB) controller having a USB device port and a USB host port, the third interface configured for operatively coupling to the remote computer." The second network of the vehicle is "configured for communications according to a protocol different from the J1587 network." For the same reasons discussed above with regard to independent claim 1, no one or combination of Gurne, Funkhouser, and Hullinger discloses these limitations, and the Examiner's rejection of independent claim 36 should be reversed.

Independent claim 44 recites "a first interface configured for operatively coupling to a J1939 network of a vehicle, . . . a second interface configured for operatively coupling to a J1587 network of the vehicle, . . . and a third interface including a universal serial bus (USB) controller having a USB device port and a USB host port, the third interface configured for operatively coupling to the remote computer." For the same reasons discussed above with regard to independent claim 1, no one or

combination of Gurne, Funkhouser, and Hullinger discloses these limitations, and the Examiner's rejection of independent claim 44 should be reversed.

In addition, claims 29-32 depend from independent claim 28 and should be found allowable for at least the above reasons. Claims 37-40 depend from independent claim 36 and should be found allowable for at least the above reasons. Claims 45-47 depend from independent claim 44 and should also be found allowable for at least the above reasons. Thus, the Board should reverse the Examiner's rejections of claims 10-17, 19-24, 28-32, 36-40, and 44-47.

2. Claims 33-35, 41-43, 48-50, 63-70 and 78-95.

Claims 33-35, 41-43, 48-50, and 63-70 and 78-95 also stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Gurne in view of Funkhouser and further in view of Hullinger. Appellants assert that no one or combination of Gurne, Funkhouser, and Hullinger discloses all the limitations of Appellants' dependent claims 33, 41, and 48 and independent claims 56 and 78, as well as, thereby failing to establish a prima facie case of obviousness of claims 33-35, 41-43, 48-50, and 63-70 and 78-95. For example, neither Gurne, Funkhouser, nor Hullinger disclose (i) first and second interfaces configured for operatively coupling to distinct network segments of a vehicle communications network or (ii) a third interface including a universal serial bus (USB) controller having a USB On-The-Go port. For at least these reasons, the Examiner's rejection of claims 33-35, 41-43, 48-50, and 63-70 and 78-95 should be reversed.

Independent claim 78 recites "a first interface configured for operatively coupling to a J1939 network of a vehicle, . . . a second interface configured for operatively coupling to a J1587 network of the vehicle, . . . and a third interface . . . configured for

operatively coupling to the remote computer." For the reasons stated above with regard to claim 1, neither Gurne nor Funkhouser disclose or suggest first and second vehicle interfaces, each configured for operatively coupling to a distinct network segment of a vehicle communications network. As discussed above, Hullinger fails to remedy this deficiency of Gurne and Funkhouser and likewise fails to show or disclose the adapter of claim 1. Thus, the Examiner's rejection of independent claim 78 should be reversed for at least this reason.

In addition to the first and second interfaces, independent claims 56 and 78 recites "a third interface including a USB On-The-Go port." In similar fashion, dependent claims 33, 41, and 48 further limits their respective independent claims by requiring that "the universal serial bus (USB) controller further comprises a USB On-The-Go port." As discussed above, neither Gurne nor Funkhouser teach or suggest a USB On-The-Go port. Hullinger does not remedy this deficiency as Hullinger fails to disclose a USB controller, let alone a USB On-The-Go port. As no one or combination of Gurne, Funkhouser, and Hullinger disclose or suggest a third interface including a USB controller having a USB On-The-Go port, the combination cannot support a prima facie case of obviousness under 35 U.S.C. § 103(a), and the rejection should be reversed for this additional reason.

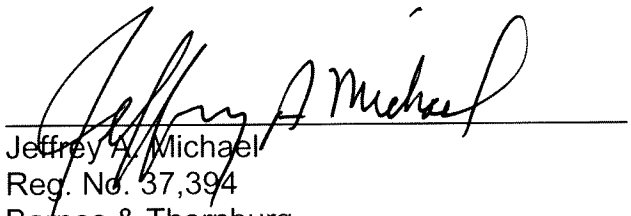
Claims 34 and 35 depend from claim 33 and should be found allowable for at least the above reasons. Claims 42 and 43 depend from claim 41 and should be found allowable for at least the above reasons. Claims 49 and 50 depend from claim 48 and should be found allowable for at least the above reasons. Claims 63-70 depend from independent claim 56 and should be found allowable for at least the above reasons.

Claims 79-95 depend from claim 78 and should also be found allowable for at least the above reasons. Thus, the Board should reverse the Examiner's rejections of claims 33-35, 41-43, 48-50, and 63-70 and 78-95.

CONCLUSION

Appellants respectfully submit that the Examiner has not established a *prima facie* case of obviousness with regard to Appellants' claims 1-95 and has, therefore, erred in rejecting these claims. From the foregoing discussion, it should now be apparent that neither Gurne, Funkhouser, nor Hullinger, alone or in combination, disclose all the elements of Appellants' claims, and the § 103(a) rejections of claims 1-95 should therefore be withdrawn. It is requested that the Board reverse the final rejections of claims 1-95 and direct that this application be passed to issuance.

Respectfully submitted,



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VIII. CLAIMS APPENDIX

1. An adapter for allowing communications between a vehicle control computer coupled to a vehicle communications network and a remote computer, the adapter comprising:

a first interface configured for operatively coupling to a first network segment of the vehicle communications network, the first network segment configured for communications according to a first protocol;

a second interface configured for operatively coupling to a second network segment of the vehicle communications network, the second network segment configured for communications according to a second protocol; and

a third interface including a universal serial bus (USB) controller having a USB device port and a USB host port, the third interface configured for operatively coupling to the remote computer via at least one of the USB device port and the USB host port;

wherein the vehicle control computer and the remote computer communicate via one of the first network segment through the first and third interfaces and the second network segment through the second and third interfaces.

2. The adapter of claim 1, wherein the remote computer is a personal digital assistant having a USB device port, and wherein the USB device port of the personal digital assistant is operatively coupled to the USB host port of the universal serial bus controller.

3. The adapter of claim 2, wherein the remote computer comprises service tool software.

4. The adapter of claim 2, wherein the remote computer comprises vehicle diagnostic software.

5. The adapter of claim 1, wherein the remote computer is a personal computer having a USB host port, and wherein the USB host port of the personal computer is operatively coupled to the USB device port of the universal serial bus controller.

6. The adapter of claim 5, wherein the remote computer comprises service tool software.

7. The adapter of claim 5, wherein the remote computer comprises vehicle diagnostic software.

8. The adapter of claim 1, wherein the USB host port of the universal serial bus controller is configured for coupling with a plurality of remote computers, each of the plurality of remote computers having a USB device port.

9. The adapter of claim 8, wherein at least one of the plurality of remote computers comprises vehicle diagnostic or service tool software.

10. The adapter of claim 1, wherein the first network segment of the vehicle communications network comprises a J1939 network segment, and wherein the first interface of the adapter is operatively coupled to the J1939 network segment.

11. The adapter of claim 10, wherein messages communicated via the J1939 network segment are made available via the third interface.

12. The adapter of claim 11, wherein the remote computer is a personal digital assistant having a USB device port, the USB device port of the personal digital assistant is operatively coupled to the USB host port of the universal serial bus controller, and messages communicated via the J1939 network segment are further communicated to the personal digital assistant.

13. The adapter of claim 11, wherein the remote computer is a personal computer having a USB host port, the USB host port of the personal computer is operatively coupled to the USB device port of the universal serial bus controller, and messages communicated via the J1939 network segment are further communicated to the personal computer.

14. The adapter of claim 1, wherein the first network segment of the vehicle communications network comprises a J1587 network segment, and wherein the first interface of the adapter is operatively coupled to the J1587 network segment.

15. The adapter of claim 14, wherein messages communicated via the J1587 network segment are made available via the third interface.

16. The adapter of claim 15, wherein the remote computer is a personal digital assistant having a USB device port, the USB device port of the personal digital assistant is operatively coupled to the USB host port of the universal serial bus controller, and messages communicated via the J1587 network segment are further communicated to the personal digital assistant.

17. The adapter of claim 15, wherein the remote computer is a personal computer having a USB host port, the USB host port of the personal computer is operatively coupled to the USB device port of the universal serial bus controller, and messages communicated via the J1587 network segment are further communicated to the personal computer.

18. The adapter of claim 1, the adapter further comprising a fourth interface configured for operatively coupling to a second remote computer, wherein the fourth interface comprises an RS-232 serial port.

19. The adapter of claim 18, wherein the second remote computer is a personal digital assistant having an RS-232 serial port, and wherein the RS-232 serial port of the personal digital assistant is operatively coupled to the RS-232 serial port of the adapter.

20. The adapter of claim 19, wherein the second remote computer comprises service tool software.

21. The adapter of claim 19, wherein the second remote computer comprises vehicle diagnostic software.

22. The adapter of claim 18, wherein the second remote computer is a personal computer having an RS-232 serial port, and wherein the RS-232 serial port of the personal computer is operatively coupled to the RS-232 serial port of the adapter.

23. The adapter of claim 22, wherein the second remote computer comprises service tool software.

24. The adapter of claim 22, wherein the second remote computer comprises vehicle diagnostic software.

25. The adapter of claim 1, wherein the universal serial bus controller further comprises a USB On-The-Go port.

26. The adapter of claim 25, wherein the remote computer is a personal digital assistant having a USB device port, and wherein the USB device port of the personal digital assistant is operatively coupled to the USB On-The-Go port of the universal serial bus controller.

27. The adapter of claim 25, wherein the remote computer is a personal computer having a USB host port, and wherein the USB host port of the personal computer is operatively coupled to the USB On-The-Go port of the universal serial bus controller.

28. An adapter for allowing communications between a vehicle control computer coupled to a J1939 network of a vehicle and a remote computer, the adapter comprising:

a first interface configured for operatively coupling to a J1939 network of a vehicle;

a second interface configured for operatively coupling to a second network of the vehicle, the second network configured for communications according to a protocol different from the J1939 network; and

a third interface including a universal serial bus (USB) controller having a USB device port and a USB host port, the third interface configured for operatively coupling to the remote computer via at least one of the USB device port and the USB host port;

wherein the vehicle control computer and the remote computer communicate via one of the J1939 network through the first and third interfaces and the second network through the second and third interfaces.

29. The adapter of claim 28, wherein the remote computer is a personal digital assistant having a USB device port, and wherein the USB device port of the

personal digital assistant is operatively coupled to the USB host port of the universal serial bus controller.

30. The adapter of claim 28, wherein the remote computer is a personal computer having a USB host port, and wherein the USB host port of the personal computer is operatively coupled to the USB device port of the universal serial bus controller.

31. The adapter of claim 28, wherein the USB host port of the universal serial bus controller is configured for coupling with a plurality of remote computers, each of the plurality of remote computers having a USB device port.

32. The adapter of claim 28, the adapter further comprising a fourth interface configured for operatively coupling to a second remote computer, wherein the fourth interface comprises an RS-232 serial port.

33. The adapter of claim 28, wherein the universal serial bus controller further comprises a USB On-The-Go port.

34. The adapter of claim 33, wherein the remote computer is a personal digital assistant having a USB device port, and wherein the USB device port of the personal digital assistant is operatively coupled to the USB On-The-Go port of the universal serial bus controller.

35. The adapter of claim 33, wherein the remote computer is a personal computer having a USB host port, and wherein the USB host port of the personal computer is operatively coupled to the USB On-The-Go port of the universal serial bus controller.

36. An adapter for allowing communications between a vehicle control computer coupled to a J1587 network of a vehicle and a remote computer, the adapter comprising:

a first interface configured for operatively coupling to the J1587 network of a vehicle;

a second interface configured for operatively coupling to a second network of the vehicle, the second network configured for communications according to a protocol different from the J1587 network; and

a third interface including a universal serial bus (USB) controller having a USB device port and a USB host port, the third interface configured for operatively coupling to the remote computer via at least one of the USB device port and the USB host port;

wherein the vehicle control computer and the remote computer communicate via one of the J1587 network through the first and third interfaces and the second network through the second and third interfaces.

37. The adapter of claim 36, wherein the remote computer is a personal digital assistant having a USB device port, and wherein the USB device port of the

personal digital assistant is operatively coupled to the USB host port of the universal serial bus controller.

38. The adapter of claim 36, wherein the remote computer is a personal computer having a USB host port, and wherein the USB host port of the personal computer is operatively coupled to the USB device port of the universal serial bus controller.

39. The adapter of claim 36, wherein the USB host port of the universal serial bus controller is configured for coupling with a plurality of remote computers, each of the plurality of remote computers having a USB device port.

40. The adapter of claim 36, the adapter further comprising a fourth interface configured for operatively coupling to a second remote computer, wherein the fourth interface comprises an RS-232 serial port.

41. The adapter of claim 36, wherein the universal serial bus controller further comprises a USB On-The-Go port.

42. The adapter of claim 41, wherein the remote computer is a personal digital assistant having a USB device port, and wherein the USB device port of the personal digital assistant is operatively coupled to the USB On-The-Go port of the universal serial bus controller.

43. The adapter of claim 41, wherein the remote computer is a personal computer having a USB host port, and wherein the USB host port of the personal computer is operatively coupled to the USB On-The-Go port of the universal serial bus controller.

44. An adapter for allowing communications between control computers of a vehicle and a remote computer, the adapter comprising:

a first interface configured for operatively coupling to a J1939 network segment of the vehicle;

a second interface configured for operatively coupling to a J1587 network segment of the vehicle; and

a third interface including a universal serial bus (USB) controller having a USB device port and a USB host port, the third interface configured for operatively coupling to the remote computer via at least one of the USB device port and the USB host port;

wherein at least one control computer of the vehicle and the remote computer communicate via the J1939 network through the first and third interfaces and at least another control computer of the vehicle and the remote computer communicate via the J1587 network through the second and third interfaces.

45. The adapter of claim 44, wherein the remote computer is a personal digital assistant having a USB device port, and wherein the USB device port of the

personal digital assistant is operatively coupled to the USB host port of the universal serial bus controller.

46. The adapter of claim 44, wherein the remote computer is a personal computer having a USB host port, and wherein the USB host port of the personal computer is operatively coupled to the USB device port of the universal serial bus controller.

47. The adapter of claim 44, wherein the USB host port of the universal serial bus controller is configured for coupling with a plurality of remote computers, each of the plurality of remote computers having a USB device port.

48. The adapter of claim 44, wherein the universal serial bus controller further comprises a USB On-The-Go port.

49. The adapter of claim 48, wherein the remote computer is a personal digital assistant having a USB device port, and wherein the USB device port of the personal digital assistant is operatively coupled to the USB On-The-Go port of the universal serial bus controller.

50. The adapter of claim 48, wherein the remote computer is a personal computer having a USB host port, and wherein the USB host port of the personal

computer is operatively coupled to the USB On-The-Go port of the universal serial bus controller.

51. A method for allowing communications between a vehicle control computer operatively coupled to a communication network of a vehicle and a remote computer, the method comprising:

receiving a datum via one of a first interface and a second interface, the first interface operatively coupled to a first network segment of the vehicle and configured for communication according to a first protocol, the second interface operatively coupled to a second network segment of the vehicle and configured for communication according to a second protocol;

transmitting the datum via a third interface, the third interface including a universal serial bus controller having a USB device port and a USB host port, the third interface configured for operatively coupling to a remote computer via at least one of the USB device port and the USB host port;

wherein the datum is received from the vehicle control computer operatively coupled to one of the first network segment and the second network segment, and wherein the datum is transmitted to the remote computer.

52. The method of claim 51, wherein the datum is a network message, the network message comprising a destination address.

53. The method of claim 52, wherein the transmitting step comprises determining whether the network message is bound for the third interface, and transmitting the network message via the third interface only if the network message is bound for the third interface.

54. The method of claim 53, wherein determining whether the network message is bound for the third interface comprises reading the address and comparing it to an existing address.

55. The method of claim 52 wherein the transmitting step comprises transmitting the network message via the third interface irrespective of the destination address of the network message.

56. An adapter for allowing communications between a vehicle control computer operatively coupled to a vehicle communications network, the adapter comprising:

a first interface configured for operatively coupling to a first network segment of the vehicle communications network, the first network segment configured for communications according to a first protocol;

a second interface configured for operatively coupling to a second network segment of the vehicle communications network, the second network segment configured for communications according to a second protocol; and

a third interface including a USB On-The-Go port, the third interface configured for operatively coupling to the remote computer via the USB On-The-Go port;

wherein the vehicle control computer and the remote computer communicate via one of the first network segment through the first and third interfaces and the second network segment through the second and third interfaces.

57. The adapter of claim 56, wherein the remote computer is a personal digital assistant having a USB device port, and wherein the USB device port of the personal digital assistant is operatively coupled to the USB On-The-Go port of the adapter.

58. The adapter of claim 57, wherein the remote computer comprises service tool software.

59. The adapter of claim 57, wherein the remote computer comprises vehicle diagnostic software.

60. The adapter of claim 56, wherein the remote computer is a personal computer having a USB host port, and wherein the USB host port of the personal computer is operatively coupled to the USB On-The-Go port of the adapter.

61. The adapter of claim 60, wherein the remote computer comprises service tool software.

62. The adapter of claim 60, wherein the remote computer comprises vehicle diagnostic software.

63. The adapter of claim 56, wherein the first network segment of the vehicle communications network comprises a J1939 network segment, and wherein the first interface of the adapter is operatively coupled to the J1939 network segment.

64. The adapter of claim 63, wherein messages communicated via the J1939 network segment are made available via the second interface.

65. The adapter of claim 64, wherein the remote computer is a personal digital assistant having a USB device port, the USB device port of the personal digital assistant is operatively coupled to the USB On-The-Go port of the adapter, and messages communicated via the J1939 network segment are further communicated to the personal digital assistant.

66. The adapter of claim 64, wherein the remote computer is a personal computer having a USB host port, the USB host port of the personal computer is operatively coupled to the USB On-The-Go port of the adapter, and messages

communicated via the J1939 network segment are further communicated to the personal computer.

67. The adapter of claim 56, wherein the first network segment of the vehicle communications network comprises a J1587 network segment, and wherein the first interface of the adapter is operatively coupled to the J1587 network segment.

68. The adapter of claim 67, wherein messages communicated via the J1587 network segment are made available via the second interface.

69. The adapter of claim 68, wherein the remote computer is a personal digital assistant having a USB device port, the USB device port of the personal digital assistant is operatively coupled to the USB On-The-Go port of the adapter, and messages communicated via the J1587 network segment are further communicated to the personal digital assistant.

70. The adapter of claim 68, wherein the remote computer is a personal computer having a USB host port, the USB host port of the personal computer is operatively coupled to the USB On-The-Go port of the adapter, and messages communicated via the J1587 network segment are further communicated to the personal computer.

71. The adapter of claim 56, the adapter further comprising a fourth interface configured for operatively coupling to a second remote computer, wherein the fourth interface comprises an RS-232 serial port.

72. The adapter of claim 71, wherein the second remote computer is a personal digital assistant having an RS-232 serial port, and wherein the RS-232 serial port of the personal digital assistant is operatively coupled to the RS-232 serial port of the adapter.

73. The adapter of claim 72, wherein the second remote computer comprises service tool software.

74. The adapter of claim 72, wherein the second remote computer vehicle comprises vehicle diagnostic software.

75. The adapter of claim 71, wherein the second remote computer is a personal computer having an RS-232 serial port, and wherein the RS-232 serial port of the personal computer is operatively coupled to the RS-232 serial port of the adapter.

76. The adapter of claim 75, wherein the second remote computer comprises service tool software.

77. The adapter of claim 75, wherein the second remote computer vehicle comprises vehicle diagnostic software.

78. An adapter for allowing communications between control computers of a vehicle and a remote computer, the adapter comprising:

a first interface configured for operatively coupling to a J1939 network segment of the vehicle;

a second interface configured for operatively coupling to a J1587 network segment of the vehicle; and

a third interface including a USB On-The-Go port, the third interface configured for operatively coupling to the remote computer via the USB On-The-Go port;

wherein at least one control computer of the vehicle and the remote computer communicate via the J1939 network segment through the first and third interfaces and at least another control computer of the vehicle and the remote computer communicate via the J1587 network segment through the second and third interfaces.

79. The adapter of claim 78, wherein the remote computer is a personal digital assistant or personal computer having a USB On-The-Go port, and wherein the USB On-The-Go port of the remote computer is operatively coupled to the USB On-The-Go port of the adapter.

80. The adapter of claim 79, wherein the remote computer comprises service tool software.

81. The adapter of claim 79, wherein the remote computer comprises vehicle diagnostic software.

82. The adapter of claim 78, wherein the remote computer is a personal digital assistant having a USB device port, and wherein the USB device port of the personal digital assistant is operatively coupled to the USB On-The-Go port of the adapter.

83. The adapter of claim 82, wherein the remote computer comprises service tool software.

84. The adapter of claim 82, wherein the remote computer comprises vehicle diagnostic software.

85. The adapter of claim 78, wherein the remote computer is a personal computer having a USB host port, and wherein the USB host port of the personal computer is operatively coupled to the USB On-The-Go port of the adapter.

86. The adapter of claim 85, wherein the remote computer comprises service tool software.

87. The adapter of claim 85, wherein the remote computer comprises vehicle diagnostic software.

88. The adapter of claim 78, the adapter further comprising a fourth interface configured for operatively coupling to a second remote computer, wherein the fourth interface comprises an RS-232 serial port.

89. The adapter of claim 88, wherein the second remote computer is a personal digital assistant having an RS-232 serial port, and wherein the RS-232 serial port of the personal digital assistant is operatively coupled to the RS-232 serial port of the adapter.

90. The adapter of claim 89, wherein the second remote computer comprises service tool software.

91. The adapter of claim 89, wherein the second remote computer comprises vehicle diagnostic software.

92. The adapter of claim 88, wherein the second remote computer is a personal computer having an RS-232 serial port, and wherein the RS-232 serial port of the personal computer is operatively coupled to the RS-232 serial port of the adapter.

93. The adapter of claim 92, wherein the second remote computer comprises service tool software.

94. The adapter of claim 92, wherein the second remote computer comprises vehicle diagnostic software.

95. The adapter of claim 88, wherein the remote computer is the second remote computer.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.